

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1-53. Canceled.

1 54. (Previously Presented) An endoluminal prosthesis system
2 comprising:
3 an expandable tubular Y-connector module having a common lumen, a
4 first branch lumen, and a second branch lumen, the first and second branch lumens
5 being in communication with the common lumen; and
6 a plurality of radially expandable prosthetic modules, each module
7 having a tubular body portion and an end which fittingly engages at least one of the
8 common lumen, the first branch lumen, and the second branch lumen;
9 wherein the plurality of body portions provide different selectable
10 assembled endoluminal prosthetic characteristics.

1 55. (Previously Presented) A prosthesis system as claimed in claim
2 54, wherein at least two of the plurality of body portions differ in cross-section.

1 56. (Previously Presented) A prosthesis system as claimed in claim
2 54, wherein engagement of the end of each prosthetic module with the Y-connector
3 module affixes the prosthetic module and the Y-connector module with an axial
4 overlap.

1 57. (Previously Presented) A position-indicating stent-graft
2 comprising:
3 a radially expandable tubular frame;

4 a flexible liner supported by the frame;
5 an attachment mechanism which holds the liner on the frame; and
6 markers disposed on at least one of the frame, the liner, and the
7 attachment mechanism, the markers visible under imaging to indicate at least one of
8 axial and rotational position of the stent-graft.

1 58. (Previously Presented) A position-indicating stent-graft as
2 claimed in claim 57, wherein the markers indicate position under imaging while in a
3 compressed mode and while in an expanded mode.

1 59. (Previously Presented) A position-indicating stent-graft as
2 claimed in claim 57, wherein the markers comprise a rotational indicator.

1 60. (Previously Presented) A modular endoluminal prosthesis
2 placement method comprising: inserting a Y-connector prosthetic module within a
3 body lumen system;

4 positioning a main body of the Y-connector prosthetic module at a
5 target location of a body lumen, the target location adjacent to first and second
6 branch lumens of the body lumen system;

7 radially expanding the first prosthetic module at the target location;

8 selecting a preferred first branch prosthetic module from a plurality of
9 alternative branch prosthetic modules having differing prosthetic characteristics; and

10 positioning an end of the preferred first branch prosthetic module
11 within the first branch of the body lumen system and radially expanding the
12 preferred first branch prosthetic module, the expanded preferred first branch
13 prosthetic module engaging the Y-connector prosthetic module.

1 61. (Previously Presented) A method for assembling endoluminal
2 prosthetic modules within a body lumen, the method comprising:

3 deploying a first tubular prosthetic module within the body lumen;

4 inserting a second tubular prosthetic module into the body lumen in a
5 radially compressed configuration;

6 aligning an image of markings disposed on at least one of the first
7 prosthetic module and the second prosthetic module with an image of the other of
8 the first prosthetic module and the second prosthetic module; and

9 expanding an end of the aligned second prosthetic module to engage
10 an end of the first prosthetic module.

1 62. (Previously Presented) The endoluminal prosthesis system as
2 claimed in claim 54, wherein a portion of at least one of said modules has a different
3 radiopacity, said portion of different radiopacity facilitating proper alignment of said
4 modules with respect to one another during said engagement.

1 63. (Previously Presented) The endoluminal prosthesis system as
2 claimed in claim 54 further comprising:

3 radiographic indicia defined on at least one of said modules and having
4 different radiopacity from said module, wherein the composite radiographic image of
5 said radiographic indicia varies with the rotational orientation of said module in a
6 body lumen;

7 wherein the rotational orientation of said module in the body lumen is
8 indicated by said radiographic image for optional adjustment of the rotational
9 orientation.

1 64. (Previously Presented) A system for introducing the endoluminal
2 prosthesis system of claim 54 into a vessel to define a continuous lumen, said
3 system comprising:

4 a first introducer for introducing a first module of said endoluminal
5 prosthesis system into the vessel, said first module having a portion adapted for
6 connection to another module; and

7 a second introducer for (a) introducing a second module of said
8 endoluminal prosthesis system in a radially compressed state into the vessel and
9 into said portion of said first module, and (b) deploying said second module to
10 connect to said portion of said first module and to define said continuous lumen
11 through said first module and said second module.

1 65. (Previously Presented) The endoluminal prosthesis system as
2 claimed in claim 54, said endoluminal prosthesis system being configured for
3 placement at an aneological bifurcation of a vessel into two branched vessels, said
4 expandable tubular Y-connector module at least partially supported by a bifurcated
5 stent member, defining two lumens, at least one of which is configured to be
6 disposed entirely within said vessel and is adapted to mate with one of said radially
7 expandable prosthetic modules configured to extend into one of the two branched
8 vessels.

9 66. (Previously Presented) The endoluminal prosthesis system as
10 claimed in claim 54, said endoluminal prosthesis system comprising a male engaging
11 portion on a selected one of said modules, and a female portion on another one of
12 said modules, said male engaging portion being configured to be positioned at least
13 partially within said female portion for inter-engagement between the outer surface
14 of said male engaging portion and the inner surface of said female portion to resist

15 longitudinal movement to prevent separation of said modules in service, each of said
16 male engaging portion and said female portion comprising a stent and at least one of
17 said modules comprising a graft layer attached to said stent, said graft layer being
18 configured to be interposed between said male engaging portion and said female
19 portion to form a substantially fluid-tight seal upon assembly.

1 67. (Previously Presented) A prosthesis comprising:

2 (i) a bifurcated base structure which defines a common flow lumen
3 and a pair of connector legs which define divergent flow lumens from the common
4 flow lumen; and

5 (ii) a graft which is adapted to be anchored within one of the flow
6 lumens of said bifurcated base structure to form a continuous extension of that
7 lumen.

8 68. (Previously Presented) A prosthesis comprising:

9 a first graft comprising a proximal portion, a first distal portion, and a
10 second distal portion;

11 said proximal portion defining a lumen and adapted to be disposed
12 within a blood vessel in juxtaposition with a bifurcation;

13 said first distal portion defining a lumen and adapted to allow blood to
14 flow from said proximal portion into a first branched blood vessel;

15 said second distal portion defining a lumen and adapted to allow blood
16 to flow from said proximal portion into a second branched vessel; and

17 a second graft defining a lumen and adapted to be intravascularly
18 inserted into a lumen of said first graft to allow blood to flow through the lumen
19 defined by said second graft; and

20 wherein said first distal portion has a downstream end forming a skirt.

1 69. (Previously Presented) The prosthesis as defined in claim 67,
2 wherein said bifurcated base structure and said graft are formed of a thin
3 biocompatible material.

1 70. (Previously Presented) A graft for treatment of aneurysms or
2 occlusive diseases comprising:

3 a primary graft body, said primary graft body having a primary graft
4 flow lumen therethrough, said primary graft body comprising a first portion and a
5 second portion; and

6 a supplemental graft body, said supplemental graft body having a
7 secondary graft flow lumen therethrough, said supplemental graft body comprising a
8 first end and a second end, said first end of said supplemental graft body being
9 dockable to said second portion of said primary graft body while inside of a vessel to
10 define a single flow lumen which transfers substantially all flow between said primary
11 graft flow lumen and said secondary graft flow lumen.

1 71. (Previously Presented) The graft as defined in claim 70, wherein
2 said primary graft body is circumferentially reinforced at locations along its length by
3 a plurality of separate spaced apart wires.

1 72. (Previously Presented) The graft as defined in claim 71, wherein
2 each of said separate spaced apart wires comprises two opposing ends, said ends
3 being joined together on the outside surface of said primary graft body.

1 73. (Previously Presented) The graft as defined in claim 71, wherein
2 at least one of the reinforcement wires is attached to said primary graft body via
3 sutures.

1 74. (Previously Presented) The graft as defined in claim 71, wherein
2 at least one of the reinforcement wires is attached to said primary graft body.

1 75. (Previously Presented) The graft as defined in claim 70, wherein
2 said supplemental graft body is circumferentially reinforced at locations along its
3 length by a plurality of separate, spaced apart wires.

1 76. (Previously Presented) The graft as defined in claim 75, wherein
2 each of said separate wires comprise two opposing ends, said ends being joined
3 together on the outside surface of said supplemental graft body.

1 77. (Previously Presented) The graft as defined in claim 75, wherein
2 at least one of the reinforcement wires is attached to said supplemental graft body
3 via sutures.

1 78. (Previously Presented) The graft as defined in claim 75, wherein
2 at least one of the reinforcement wires is attached to said supplemental graft body.

1 79. (Previously Presented) The graft as defined in claim 71, wherein
2 at least one of the reinforcement wires has a different amplitude than the next
3 adjacent wire.

1 80. (Previously Presented) The graft as defined in claim 75, wherein
2 at least one of the reinforcement wires has a different amplitude than the next
3 adjacent wire.

1 81. (Previously Presented) The graft as defined in claim 71, wherein
2 one of the reinforcement wires is located at one end of the primary graft body and
3 has alternate crests or apices extending beyond said one end of the primary graft
4 body.

1 82. (Previously Presented) The graft as defined in claim 70, wherein
2 material of said primary graft body is crimped along its length.

1 83. (Previously Presented) The graft as defined in claim 70, wherein
2 material of said supplemental graft body is crimped along its length.

3 84. (Previously Presented) The graft as defined in claim 70, wherein
4 said primary graft body and said supplemental graft body are formed of a thin
5 biocompatible material.

1 85. (Previously Presented) An endoluminal prosthesis system
2 comprising:

3 an expandable tubular Y-connector module having a common lumen, a
4 first branch lumen, and a second branch lumen, the first and second branch lumens
5 being in communication with the common lumen; and

6 a plurality of radially expandable prosthetic modules, each module
7 having a tubular body portion and an end which fittingly engages at least one of the
8 common lumen, the first branch lumen, and the second branch lumen;

9 wherein the plurality of body portions provide different selectable
10 assembled endoluminal prosthetic characteristics.

1 86. (Previously Presented) A prosthesis system as claimed in claim
2 85, wherein at least two of the plurality of body portions differ in cross-section.

1 87. (Previously Presented) A prosthesis system as claimed in claim
2 85, wherein engagement of the end of each prosthetic module with the Y-connector
3 module affixes the prosthetic module and the Y-connector module with an axial
4 overlap.

1 88. (Previously Presented) A position-indicating stent-graft
2 comprising:
3 a radially expandable tubular frame;
4 a flexible liner supported by the frame;
5 an attachment mechanism which holds the liner on the frame; and
6 markers disposed on at least one of the frame, the liner, and the
7 attachment mechanism, the markers visible under imaging to indicate at least one of
8 axial and rotational position of the stent-graft.

1 89. (Previously Presented) A position-indicating stent-graft as
2 claimed in claim 88, wherein the markers indicate position under imaging while in a
3 compressed mode and while in an expanded mode.

1 90. (Previously Presented) A position-indicating stent-graft as
2 claimed in claim 88, wherein the markers comprise a rotational indicator.

1 91. (Previously Presented) A modular endoluminal prosthesis
2 placement method comprising: inserting a Y-connector prosthetic module within a
3 body lumen system;
4 positioning a main body of the Y-connector prosthetic module at a
5 target location of a body lumen, the target location adjacent to first and second
6 branch lumens of the body lumen system;

7 radially expanding the first prosthetic module at the target location;
8 selecting a preferred first branch prosthetic module from a plurality of
9 alternative branch prosthetic modules having differing prosthetic characteristics; and
10 positioning an end of the preferred first branch prosthetic module
11 within the first branch of the body lumen system and radially expanding the
12 preferred first branch prosthetic module, the expanded preferred first branch
13 prosthetic module engaging the Y-connector prosthetic module.

1 92. (Previously Presented) A method for assembling endoluminal
2 prosthetic modules within a body lumen, the method comprising:

3 deploying a first tubular prosthetic module within the body lumen;

4 inserting a second tubular prosthetic module into the body lumen in a
5 radially compressed configuration;

6 aligning an image of markings disposed on at least one of the first
7 prosthetic module and the second prosthetic module with an image of the other of
8 the first prosthetic module and the second prosthetic module; and

9 expanding an end of the aligned second prosthetic module to engage
10 an end of the first prosthetic module.

1 93. (New) A graft comprising:

2 a first graft body, said first graft body having a first graft body inlet
3 end and a first graft body outlet end to define a flow passage therethrough; and

4 a second graft body, said second graft body having a second graft
5 body inlet end and a second graft body outlet end to define a flow passage
6 therethrough;

7 said second graft body inlet end being attachable in an overlapping
8 relationship with said first graft body outlet end while inside of a vessel to define a
9 continuous flow passage through said first graft body inlet end, said first graft body
10 outlet end, said second graft body inlet end and said second graft body outlet end.

1 94. (New) The graft of claim 93 wherein at least one of the first graft
2 body and the second graft body is reinforced by a wire structure.

3 95. (New) The graft of claim 94 wherein the wire structure is formed
4 of a metal.

5 96. (New) The graft of claim 94 wherein the wire structure is sutured
6 to the respective graft body.

1 97. (New) The graft of claim 94 wherein at least one of the first graft
2 body and the second graft body is a multi-layered graft body and the wire structure
3 is sandwiched between layers of said multi-layered graft body.

1 98. (New) The graft of claim 94 wherein at least a portion of one of
2 the first graft body and the second graft body is made of PTFE.

1 99. (New) The graft of claim 94 wherein the wire structure is
2 disposed at least in part on an outside surface of the respective graft body

1 100. (New) The graft of claim 94 wherein the wire structure is
2 disposed substantially on an inside surface of the respective graft body.

1 101. (New) The graft of claim 94 wherein the wire structure is
2 interwoven with the surface of the respective graft body.

1 102. (New) The graft of claim 94 wherein the wire structure is X-ray
2 detectable.

1 103. (New) The graft of claim 93 wherein the second graft body is
2 frusto-conical in shape.

1 104. (New) The graft of claim 93 wherein the second graft body is
2 substantially cylindrical.

1 105. (New) The graft of claim 93 wherein one of the first graft body
2 and the second graft body comprises a skirt portion.

1 106. (New) The graft of claim 105 wherein said skirt portion is about
2 18 mm in length.

1 107. (New) The graft for treatment of aneurysms or occlusive
2 diseases comprising:

3 a first graft body, said first graft body having an inlet end and an
4 outlet end to define a first flow passage therethrough; and

5 a second graft body, said second graft body having an inlet end and an
6 outlet end to define a second flow passage therethrough;

7 said inlet end of said second graft body being attachable in an
8 overlapping relationship with said outlet end of said first graft body while inside of a
9 vessel to define a continuous flow passage between said inlet end and said outlet end
10 of said first graft body and said inlet end and said outlet end of said second graft
11 body; and

12 wherein at least one of the inlet ends and the outlet ends is reinforced
13 with a wire member which has a plurality of apices extending beyond at least a
14 portion of the corresponding end.

1 108. (New) A graft comprising:

2 a first graft body, said first graft body having an inlet end and an
3 outlet end to define a first flow passage therethrough; and

4 a second graft body, said second graft body having an inlet end and an
5 outlet end to define a second flow passage therethrough;

6 said inlet end of said second graft body being attachable in an
7 overlapping relationship with said outlet end of said first graft body while inside of a
8 vessel to define a continuous flow passage through said first flow passage and said
9 second flow passage; and

10 wherein the graft is adapted to be placed in a lumen of a first vessel
11 that intersects with a second vessel; and wherein at least one of the said inlet end of
12 said first graft body and said outlet end of said second graft body that is adjacent to
13 a junction between the first vessel and the second vessel is reinforced with a wire
14 member which has a plurality of apices extending beyond at least a portion of a
15 respective end adjacent to said junction.

1 109. (New) A graft for treatment of aneurysms or occlusive diseases
2 comprising:

3 a first graft body, said first body having an inlet end and an outlet end
4 to define a flow passage therethrough; and

5 a second graft body, said second graft body having an inlet end and an
6 outlet end to define a flow passage therethrough;

7 said inlet end of said second graft body being attachable in an
8 overlapping relationship with said outlet end of said first graft body while inside of a
9 vessel to define a continuous flow passage between said inlet end and said outlet end
10 of said first graft body and said inlet end and said outlet end of said second graft
11 body;

12 wherein at least one of the first graft body and the second graft body is
13 circumferentially reinforced by a metal wire structure.

1 110. (New) The graft of claim 109 wherein the metal wire structure
2 comprises at least one wireform.

1 111. (New) The graft of claim 110 wherein said at least one wireform
2 has closed sinusoidal shape.

1 112. (New) The graft of claim 109 wherein the metal wire structure
2 comprises a plurality of wireforms.

1 113. (New) A prosthesis comprising:

2 a bifurcated base graft structure which defines a common flow lumen
3 and a pair of connector legs which define divergent flow lumens from the common
4 flow lumen; and

5 a second graft structure which is adapted to overlap and be attached
6 to one of the flow lumens of said bifurcated base graft structure to form a continuous
7 extension of that lumen;

8 wherein at least one of the bifurcated base graft structure and the
9 second graft structure comprises a first end and a second end, and wherein at least
10 one of the first and the second ends is reinforced with a wire structure which has a
11 plurality of apices extending beyond at least a portion of the corresponding end.

1 114. (New) The prosthesis of claim 113 wherein the first and the
2 second ends are each reinforced with a wire structure which has a plurality of apices
3 extending beyond the first and the second ends.

1 115. (New) A prosthesis comprising:

2 a bifurcated base graft structure which defines a common flow lumen
3 and a pair of connector legs which define divergent flow lumens from the common
4 flow lumen; and

5 a second graft structure which is adapted to overlap and be attached
6 to one of the flow lumens of said bifurcated base graft structure to form a continuous
7 extension of that lumen;

8 wherein the second graft structure is adapted to overlap and be
9 attached to one of the divergent flow lumens.

1 116. (New) The prosthesis of claim 115 wherein one of the
2 bifurcated base graft structure and the second graft structure is reinforced by a metal
3 wire structure.

1 117. (New) The prosthesis of claim 116 wherein at least a portion of
2 said metal wire structure is X-ray detectable.

1 118. (New) The prosthesis of claim 116 wherein the metal wire
2 structure comprises a plurality of wireforms.

119. (New) The prosthesis of claim 118 wherein each wireform of the plurality of wireforms has a closed sinusoidal shape.

120. (New) The prosthesis of claim 115 wherein each of the bifurcated base graft structure and the second graft structure comprises an inlet end and at least one outlet end;

wherein the prosthesis is adapted to be placed in a lumen of a first vessel that intersects with a second vessel such that at least one of the inlet end of the bifurcated base graft structure and the outlet end of the second graft structure is placed adjacent said intersection between the first vessel and the second vessel; and wherein the at least one of the inlet end of the bifurcated based graft structure and the outlet end of the second graft structure is provided with a wire structure which has a plurality of apices extending beyond at least a portion of the corresponding inlet end of the bifurcated base graft structure and outlet end of the second graft structure.

121. (New) A prosthesis comprising:

a bifurcated base graft structure which defines a common flow lumen and a pair of connector legs which define divergent flow lumens from the common flow lumen; and

a second graft structure which is adapted to overlap and be attached to one of the flow lumens of said bifurcated base structure to form a continuous extension of that lumen;

wherein at least one of the bifurcated base graft structure and the second graft structure comprises a first end and a second end, and wherein at least

- 10 one of the first and second ends is provided with a wire structure which has a
- 11 plurality of apices extending beyond at least a portion of the corresponding end.